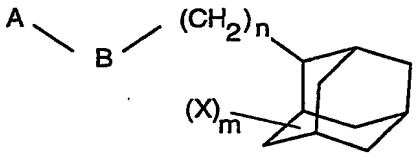
Claims

1. A compound of formula



(I)

or a pharmaceutically acceptable salt, prodrug or solvate thereof, wherein

A represents a phenyl, pyridyl, indolyl, indazolyl, purinyl, pyrimidinyl, thiophenyl, benzothiazolyl, quinolinyl or isoquinolinyl group, each of which may be optionally substituted by one or more substituents, which may be the same or different, selected from halogen, amino, nitro, cyano, hydroxyl, C_1-C_6 alkyl optionally substituted by at least one substituent selected from hydroxyl or halogen, C_1-C_6 alkoxy, or a group of formula

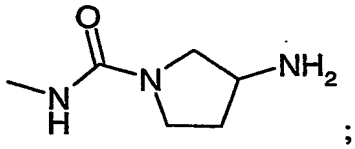
$-[Y]_p-R^1-R^2$ (II)

where Y represents an oxygen or sulphur atom or a group $-N(R^3)-$;

p is 0 or 1;

R^1 represents a bond or a C_1-C_6 alkyl group which may be optionally substituted by at least one substituent selected from hydroxyl, halogen, C_1-C_6 alkoxy, C_1-C_6 alkylthio, C_1-C_6 hydroxyalkyl, C_1-C_6 hydroxyalkyloxy, C_1-C_6 alkoxycarbonyl, C_3-C_8 cycloalkyl, phenyl (optionally substituted by at least one substituent selected from halogen, hydroxyl and C_1-C_6 alkylsulphonylamino), benzyl, indolyl (optionally substituted by at least one substituent selected from C_1-C_6 alkoxy), oxopyrrolidinyl, phenoxy, benzodioxolyl, phenoxyphenyl, piperidinyl and benzyloxy;

R^2 represents hydrogen, hydroxyl, or a group $-NR^4R^5$ except that when R^1 represents a bond, then R^2 represents a saturated or unsaturated 3- to 10-membered ring system which may comprise at least one ring heteroatom selected from nitrogen, oxygen and sulphur, the ring system being optionally substituted by at least one substituent selected from hydroxyl,

amino ($-NH_2$), C_1-C_6 alkyl, C_1-C_6 alkylamino, $-NH(CH_2)_2OH$, $-NH(CH_2)_3OH$, $NH(CH_2)_4OH$, C_1-C_6 hydroxyalkyl, benzyl, and  ;

R^3 represents a hydrogen atom or a C_1-C_6 alkyl group which may be optionally substituted by at least one substituent selected from hydroxyl, halogen and C_1-C_6 alkoxy;

R^4 and R^5 each independently represent hydrogen, pyrrolidinyl, piperidinyl, C_1-C_6 alkylcarbonyl, C_2-C_7 alkenyl, or C_1-C_7 alkyl optionally substituted with at least one substituent selected from carboxyl, hydroxyl, amino ($-NH_2$), C_1-C_6 alkylamino, di-C_1-C_6 alkylamino, $-NH(CH_2)_2OH$, C_1-C_6 alkoxy, C_1-C_6 alkylthio, C_1-C_6 alkoxycarbonyl, and a saturated or unsaturated 3- to 10-membered ring system which may comprise at least one ring heteroatom selected from nitrogen, oxygen and sulphur, the ring system being optionally substituted by at least one substituent selected from halogen, hydroxyl, oxo, carboxyl, cyano, C_1-C_6 alkyl, C_1-C_6 hydroxyalkyl, $-NR^6R^7$, $-(CH_2)_rNR^8R^9$ and $-CONR^{10}R^{11}$,

or R^4 and R^5 may together with the nitrogen atom to which they are attached form a saturated 4- to 8-membered heterocyclic ring which may comprise a second ring heteroatom selected from nitrogen and oxygen, the ring being optionally substituted by at least one substituent selected from hydroxyl, halogen, C_1-C_6 alkyl , and C_1-C_6 hydroxyalkyl;

r is 1, 2, 3, 4, 5 or 6;

R^6 and R^7 each independently represent a hydrogen atom or a C_1-C_6 alkyl, C_2-C_6 hydroxyalkyl or C_3-C_8 cycloalkyl group, or R^6 and R^7 together with the nitrogen atom to which they are attached form a 3- to 8-membered saturated heterocyclic ring;

R^8 and R^9 each independently represent a hydrogen atom or a C_1-C_6 alkyl, C_2-C_6 hydroxyalkyl or C_3-C_8 cycloalkyl group, or R^8 and R^9 together with the nitrogen atom to which they are attached form a 3- to 8-membered saturated heterocyclic ring; and

R^{10} and R^{11} each independently represent a hydrogen atom or a C_1-C_6 alkyl, C_2-C_6 hydroxyalkyl or C_3-C_8 cycloalkyl group, or R^{10} and R^{11} together with the nitrogen atom to which they are attached form a 3- to 8-membered saturated heterocyclic ring;

B represents C(O)NH or NHC(O);
n is 1, 2, 3, 4, 5 or 6;
each X is independently selected from halogen or C_1-C_6 alkoxy; and
m is 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9;
with the proviso that when B represents C(O)NH, n is 1 and m is 0, then A is not an unsubstituted phenyl group.

2. A compound according to claim 1 wherein A represents a substituted or unsubstituted group selected from phenyl, pyridyl, indolyl or quinolinyl group.

3. A compound according to claim 1 or claim 2 wherein A is substituted by one or more substituents, which may be the same or different, selected from C_1-C_6 alkoxy or C_1-C_6 alkyl, optionally substituted by at least one substituent selected from halogen or hydroxyl.

4. A compound according to any preceding claim wherein B represents NHC(O).

5. A compound according to any preceding claim wherein m is 1, 2 or 3.

6. A compound according to claim 5 wherein X is halogen or C_1-C_4 alkoxy.

7. A compound according to any of claims 1 to 4 wherein m is 0.

8. A compound according to any preceding claim wherein n is 1 or 2

9. A compound of formula (I) according to claim 1 which is selected from
2-(2-Adamantyl)-*N*-(1*H*-indol-4-yl)acetamide and
2-(2-Adamantyl)-N-(5-methoxy-2-methylphenyl)acetamide,
2-(1-Adamantyl)-N-quinolin-5-ylacetamide,

or a pharmaceutically acceptable salt, prodrug or solvate thereof.

10. A pharmaceutical composition comprising a compound of formula (I), or a pharmaceutically acceptable salt, prodrug or solvate thereof, as claimed in any one of claims 1 to 9, in association with a pharmaceutically acceptable adjuvant, diluent or carrier.

11. A pharmaceutical composition comprising a compound of formula (I) or a pharmaceutially acceptable salt, pro-drug or solvate thereof, as claimed in any one of claims 1 to 9, in combination with one or more additional pharmaceutically active agents.

12. A process for the preparation of a pharmaceutical composition as claimed in claim 10 which comprises mixing a compound of formula (I), or a pharmaceutically acceptable salt, prodrug or solvate thereof, as defined in any one of claims 1 to 9 with a pharmaceutically acceptable adjuvant, diluent or carrier.

13. A compound of formula (I), or a pharmaceutically acceptable salt, prodrug or solvate thereof, as claimed in any one of claims 1 to 9 for use in therapy

14. Use of a compound of formula (I), or a pharmaceutically acceptable salt, prodrug or solvate thereof, as claimed in any one of claims 1 to 9 in the manufacture of a medicament for use in the treatment of a disease condition mediated by the $P2X_7$ receptor

15. Use of a compound of formula (I) or a pharmaceutically acceptable salt, prodrug or solvate thereof as claimed in any one of claims 1 to 9 in the manufacture of a medicament for use in the treatment of an obstructive airways disease.

16. Use according to claim 14, wherein the obstructive airways disease is asthma or chronic obstructive pulmonary disease.

17. Use of a compound of formula (I) or a pharmaceutically acceptable salt, prodrug or solvate thereof as claimed in any one of claims 1 to 9 in the manufacture of a medicament for use in the treatment of osteoarthritis.

18. Use of a compound of formula (I), or a pharmaceutically acceptable salt, prodrug or solvate thereof, as claimed in any one of claims 1 to 9 in the manufacture of a medicament for use in the treatment of rheumatoid arthiritis.

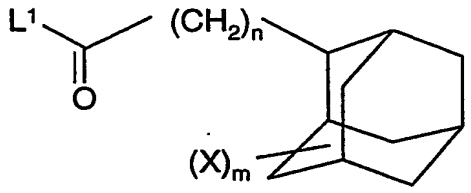
19. Use of a compound of formula (I) or a pharmaceutically acceptable salt, prodrug or solvate thereof as claimed in any one of claims 1 to 15 in the manufacture of a medicament for use in the treatment of artherosclerosis.

20. A method of treating rheumatoid arthritis or osteoarthritis which comprises administering to a patient a therapeutically effective amount of a compound of formula (I) or a pharmaceutically acceptable salt, prodrug or solvate thereof as claimed in any one of claims 1 to 9.

21. A method of treating an obstructive airways disease which comprises administering to a patient a therapeutically effective amount of a compound of formula (I) or a pharmaceutically acceptable salt, prodrug or solvate thereof as claimed in any one of claims 1 to 9.

22. A process for the preparation of a compound of formula (I) or a pharmaceutically acceptable salt, prodrug or solvate thereof, which comprises:

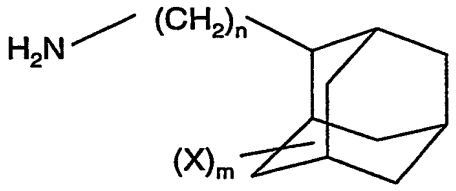
(a) when B represents NHC(O), reacting a compound of formula (III)



(III)

wherein L^1 represents a leaving group and n,m and X are as defined in formula (I), with a compound of formula (IV), A-NH_2, wherein A is as defined in formula (I); or

(b) when B represents C(O)NH, reacting a compound of formula



(V)

wherein X, m and n are as defined in formula (I), with a compound of formula (VI), A-C(O)-L^2, wherein L^2 represents a leaving group and A is as defined in formula (I);and optionally thereafter carrying out one or more of the following:
converting the compound obtained into a further compound according to the invention and/or forming a pharmaceutically acceptable salt or prodrug or solvate of the compound.